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| *Title:* | **Non-CE1: Cross-check of JCTVC-T0082: Syntax fixes for the palette mode** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Report | | |
| *Author(s) or Contact(s):* | Yuwen He, Xiaoyu Xiu, Yan Ye 9710 Scranton Rd, #250 San Diego, CA 92121, USA | Tel: Email: | +1-858-210-4819 [yuwen.he@interdigital.com](mailto:yuwen.he@interdigital.com)  xiaoyu.xiu@interdigital.com  [yan.ye@interdigital.com](mailto:yan.ye@interdigital.com) |
| *Source:* | InterDigital Communications, Inc. | | |

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# Abstract

This documents reports the crosscheck results for Non-CE1 proposal JCTVC-T0082 on syntax fixes for palette mode. The source code provided by the proponents was verified to be consistent with the description in JCTVC-T0082. The rate-distortion performance was evaluated with CE-1 test conditions JCTVC-S1101 and matches the one provided in JCTVC-T0082.

# Introduction

JCTVC-T0082 [2] proposed to add a condition for palette\_sharing\_flag signalling in the palette coding. If the palette table predictor list is empty, then palette\_sharing\_flag will not be signalled and inferred as 0.

# Simulation results

The performance of the modified signalling of palette\_sharing\_flag described as the first fix method in JCTVC-T0082 is cross-checked according to CE-1 test conditions [1] and is summarized below. The 420 lossy and lossless coding are not affected because palette coding is not available. The detailed results can be found in the attached excel datasheets.

Table 1. Average BD rate reduction for 444 lossy coding compared with SCM-3.0 anchor

|  |  |  |  |
| --- | --- | --- | --- |
|  | **All Intra** | | |
|  | G/Y | B/U | R/V |
| RGB, text & graphics with motion, 1080p & 720p | 0.0% | 0.0% | 0.0% |
| RGB, mixed content, 1440p & 1080p | 0.0% | 0.0% | 0.0% |
| RGB, Animation, 720p | 0.0% | 0.0% | 0.0% |
| RGB, camera captured, 1080p | 0.0% | 0.0% | 0.0% |
| YUV, text & graphics with motion, 1080p & 720p | 0.0% | 0.0% | 0.1% |
| YUV, mixed content, 1440p & 1080p | 0.0% | 0.0% | 0.1% |
| YUV, Animation, 720p | 0.0% | 0.0% | 0.0% |
| YUV, camera captured, 1080p | 0.0% | 0.0% | 0.0% |
| Enc Time[%] | 93% | | |
| Dec Time[%] | 92% | | |
|  |  |  |  |
|  | **Random Access** | | |
|  | G/Y | B/U | R/V |
| RGB, text & graphics with motion, 1080p & 720p | 0.0% | 0.0% | 0.0% |
| RGB, mixed content, 1440p & 1080p | 0.0% | 0.0% | 0.0% |
| RGB, Animation, 720p | 0.1% | 0.1% | 0.1% |
| RGB, camera captured, 1080p | 0.0% | 0.0% | 0.0% |
| YUV, text & graphics with motion, 1080p & 720p | 0.0% | 0.0% | -0.1% |
| YUV, mixed content, 1440p & 1080p | 0.1% | 0.1% | 0.1% |
| YUV, Animation, 720p | -0.1% | -0.1% | 0.2% |
| YUV, camera captured, 1080p | 0.0% | 0.0% | 0.0% |
| Enc Time[%] | 96% | | |
| Dec Time[%] | 94% | | |
|  |  |  |  |
|  | **Low delay B** | | |
|  | G/Y | B/U | R/V |
| RGB, text & graphics with motion, 1080p & 720p | 0.0% | 0.0% | 0.0% |
| RGB, mixed content, 1440p & 1080p | 0.1% | 0.2% | -0.1% |
| RGB, Animation, 720p | 0.0% | 0.0% | -0.1% |
| RGB, camera captured, 1080p | 0.1% | 0.0% | 0.0% |
| YUV, text & graphics with motion, 1080p & 720p | 0.0% | -0.1% | -0.2% |
| YUV, mixed content, 1440p & 1080p | -0.1% | 0.0% | 0.3% |
| YUV, Animation, 720p | 0.0% | 0.4% | 0.0% |
| YUV, camera captured, 1080p | 0.0% | 0.2% | 0.0% |
| Enc Time[%] | 96% | | |
| Dec Time[%] | 96% | | |

Table 2. Average BD rate reduction for 444 lossless coding compared with SCM-3.0 anchor

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **All Intra** | | | |
|  | Bit-rate change (Total) | Bit-rate change (Average) | Bit-rate change (Min) | Bit-rate change (Max) |
|  |
| RGB, text & graphics with motion, 1080p & 720p | 0.0% | 0.0% | 0.0% | 0.0% |
| RGB, mixed content, 1440p & 1080p | 0.0% | 0.0% | 0.0% | 0.0% |
| RGB, Animation, 720p | 0.0% | 0.0% | 0.0% | 0.0% |
| RGB, camera captured, 1080p | 0.0% | 0.0% | 0.0% | 0.0% |
| YUV, text & graphics with motion, 1080p & 720p | 0.0% | 0.0% | 0.0% | 0.0% |
| YUV, mixed content, 1440p & 1080p | 0.0% | 0.0% | 0.0% | 0.0% |
| YUV, Animation, 720p | 0.0% | 0.0% | 0.0% | 0.0% |
| YUV, camera captured, 1080p | 0.0% | 0.0% | 0.0% | 0.0% |
| Enc Time[%] | 97% | | | |
| Dec Time[%] | 94% | | | |
|  |  |  |  |  |
|  | **Random Access** | | | |
|  | Bit-rate change (Total) | Bit-rate change (Average) | Bit-rate change (Min) | Bit-rate change (Max) |
|  |
| RGB, text & graphics with motion, 1080p & 720p | 0.0% | 0.0% | 0.0% | 0.0% |
| RGB, mixed content, 1440p & 1080p | 0.0% | 0.0% | 0.0% | 0.0% |
| RGB, Animation, 720p | 0.0% | 0.0% | 0.0% | 0.0% |
| RGB, camera captured, 1080p | 0.0% | 0.0% | 0.0% | 0.0% |
| YUV, text & graphics with motion, 1080p & 720p | 0.0% | 0.0% | 0.0% | 0.0% |
| YUV, mixed content, 1440p & 1080p | 0.0% | 0.0% | 0.0% | 0.0% |
| YUV, Animation, 720p | 0.0% | 0.0% | 0.0% | 0.0% |
| YUV, camera captured, 1080p | 0.0% | 0.0% | 0.0% | 0.0% |
| Enc Time[%] | 96% | | | |
| Dec Time[%] | 98% | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  | **Low Delay B** | | | |
|  | Bit-rate change (Total) | Bit-rate change (Average) | Bit-rate change (Min) | Bit-rate change (Max) |
|  |
| RGB, text & graphics with motion, 1080p & 720p | 0.0% | 0.0% | -0.1% | 0.0% |
| RGB, mixed content, 1440p & 1080p | 0.0% | 0.0% | 0.0% | 0.0% |
| RGB, Animation, 720p | 0.0% | 0.0% | 0.0% | 0.0% |
| RGB, camera captured, 1080p | 0.0% | 0.0% | 0.0% | 0.0% |
| YUV, text & graphics with motion, 1080p & 720p | 0.0% | 0.0% | 0.0% | 0.0% |
| YUV, mixed content, 1440p & 1080p | 0.0% | 0.0% | 0.0% | 0.0% |
| YUV, Animation, 720p | 0.0% | 0.0% | 0.0% | 0.0% |
| YUV, camera captured, 1080p | 0.0% | 0.0% | 0.0% | 0.0% |
| Enc Time[%] | 96% | | | |
| Dec Time[%] | 97% | | | |

# References

1. P. Lai, P. Onno, R. Cohen, V. Seregin, X. Xiu, Z. Ma, “Description of Core Experiment 1 (CE1): Improvements of palette mode”, JCTVC-S1101, Oct. 2014, FR.
2. Y.-J. Chang, C.-L. Lin, C.-C. Lin, J.-S. Tu, C.-H. Hung, “CE1-related: Syntax fixes for the palette mode”, JCTVC-T0082, Feb. 2015.